

REMARKS

The Office Action mailed June 29, 2004 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-28 are now pending in this application. Claims 1-28 stand rejected.

The rejection of Claims 1-13 and 16-23 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. Applicant respectfully submits that one skilled in the art, after reading the specification in light of the figures, would be able to understand and duplicate that which Applicant regards as the invention. Applicant respectfully submits that Claims 1-13 and 16-23 particularly point out and distinctly claim the subject matter. For at least the above reasons, Applicant respectfully requests that the rejection of Claims 1-13 and 16-23 under 35 U.S.C. § 112, second paragraph, be withdrawn.

The rejection of Claims 1-28 under 35 U.S.C. § 102(b) as being anticipated by Yamazaki et al. (U.S. Pat. No. 5,570,403) is respectfully traversed.

Yamazaki et al. describe a dual energy scanning type x-ray CT apparatus including two adjacent detectors (1 and 2). The detectors are provided to detect different energy characteristics from each other. Column 4, lines 13-15. Notably, the x-ray source does not advance one detector cell per revolution during the imaging process. Applicant respectfully disagrees with Examiner's assertion on Page 3 of the office action stating "[f]igures 4A and 12A-12C teach that Yamazaki's source pitch is one detector." Figure 4A shows clear indication that the pitch is different from that of the detector and is greater than one pitch of the detector. Figure 2B, as well, indicates a helical pitch significantly different, and greater, than that of the detector array. The text of Yamazaki, et al., as well, does not support Examiner's assertion that the source pitch is one detector. At Column 6, lines 3-7, Yamazaki et al. recite, "... when translation pitch of the bed portion in the longitudinal direction is set at one over an integral multiple of a pitch of the detector arrays in a detection system, the loci of

two detection arrays are overlapped exactly.” Yamazaki, et al. describe a detector system where the helical pitch is different from one detector.

Claim 1 recites a computed tomographic (CT) imaging system for performing a CT scan, wherein the CT system includes "an x-ray source, a detector array comprising a plurality of detector cells, a gantry for rotating said x-ray source and said detector array, a table for translating a patient, and a processor operationally coupled to said detector array, said processor configured to receive first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-ray source pitch of one detector cell such that the x-ray source advances relative to the table one detector cell per revolution, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell, and determine spectral information from the first data and the second data."

Yamazaki et al. do not describe nor suggest the system as recited in Claim 1. More specifically, Yamazaki et al. do not describe nor suggest a system that includes a detector array including a plurality of detector cells, a processor operationally coupled to the detector array, wherein the processor is configured to receive first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-ray source pitch of one detector cell such that the x-ray source advances one detector cell per revolution, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell, and determine spectral information from the first data and the second data. Moreover, Yamazaki et al. do not describe nor suggest a system that includes a processor configured to "receive first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-ray source pitch of one detector cell such that the x-ray source advances one detector cell per revolution". Rather, Yamazaki et al. describe an x-ray CT apparatus including two adjacent detectors provided to detect different energy characteristics from each other. Accordingly, for at least the reasons set forth above, Applicant respectfully submits that Claim 1 is patentable over Yamazaki et al.

Claims 2-13 depend from independent Claim 1 which is submitted to be in condition for allowance. When the recitations of Claims 2-13 are considered in combination with the recitations of Claim 1, Applicant respectfully submits that dependent Claims 2-13 are also patentable over Yamazaki et al.

Claim 14 recites a method for scanning an object, wherein the scanning includes scanning an object by at least one of "scanning the object with an x-ray pitch of one detector cell and while varying a peak kiloelectronvolt to an x-ray tube, scanning the object with an x-ray source pitch of one detector cell such that the x-ray source advances one detector cell per revolution and with a filter such that a plurality of x-ray spectra are received by a detector array, and scanning the object with an x-ray pitch of one detector cell and such that elements of a detector array discriminate between a plurality of x-ray spectra and generate signals based on the x-ray spectra."

Yamazaki et al. do not describe nor suggest the method as recited in Claim 14. More specifically, Yamazaki et al. do not describe nor suggest scanning the object with an x-ray source pitch of one detector cell and while varying a peak kiloelectronvolt to an x-ray tube; scanning the object with an x-ray pitch of one detector cell such that the x-ray source advances one detector cell per revolution and with a filter such that a plurality of x-ray spectra are received by a detector array; and scanning the object with an x-ray pitch of one detector cell and such that elements of a detector array discriminate between a plurality of x-ray spectra and generate signals based on the x-ray spectra. Rather, Yamazaki et al. describe an x-ray CT apparatus including two adjacent detectors provided to detect different energy characteristics from each other. Accordingly, for at least the reasons set forth above, Applicant respectfully submits that Claim 14 is patentable over Yamazaki et al.

Claim 15 recites a method for determining the presence of an analyte in an object with a computed tomographic (CT) imaging system, wherein the method includes "receiving first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-ray source pitch of one detector cell such that the x-ray source advances one detector cell per

revolution, receiving second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell, and determining spectral information from the first data and the second data".

Yamazaki et al. do not describe nor suggest the method as recited in Claim 15. Moreover, Yamazaki et al. do not describe nor suggest a method including receiving first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-ray source pitch of one detector cell such that the x-ray source advances one detector cell per revolution, receiving second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell, and determining spectral information from the first data and the second data. Rather, Yamazaki et al. describe an x-ray CT apparatus including two adjacent detectors provided to detect different energy characteristics from each other. Accordingly, for at least the reasons set forth above, Applicant respectfully submits that Claim 15 is patentable over Yamazaki et al.

Claim 16 recites a computed tomographic (CT) imaging system for performing a CT scan, wherein the CT system includes "a detector array comprising a plurality of detector cells, an x-ray source positioned to emit x-rays toward said detector array, a gantry for rotating said x-ray source and said detector array, a table for translating a patient; and a processor operationally coupled to said detector array, said processor configured to receive first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-ray source pitch of one detector cell such that the x-ray source advances relative to the table one detector cell per revolution, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell, and determine spectral information from the first data and the second data."

Yamazaki et al. do not describe nor suggest the system as recited in Claim 16. Moreover, Yamazaki et al. do not describe nor suggest a system including a processor operationally coupled to the detector array, wherein the processor is configured to "receive first data regarding a first x-ray spectral range from a first detector cell from a scan with an x-

ray source pitch of one detector cell such that the x-ray source advances one detector cell per revolution, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell, and determine spectral information from the first data and the second data." Rather, Yamazaki et al. describe an x-ray CT apparatus including two adjacent detectors provided to detect different energy characteristics from each other. Accordingly, for at least the reasons set forth above, Applicant respectfully submits that Claim 16 is patentable over Yamazaki et al.

Claims 17-23 depend from independent Claim 16 which is submitted to be in condition for allowance. When the recitations of Claims 17-23 are considered in combination with the recitations of Claim 16, Applicant respectfully submits that dependent Claims 17-23 are also patentable over Yamazaki et al.

Claim 24 recites a CT imaging system including "a detector array comprising a plurality of detector cells; a processor operationally coupled to said detector array, said processor configured to receive first data regarding a first x-ray spectral range from a first detector cell of a first detector row receiving filtered x-ray beam data at a first Z location, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell of a second detector row receiving unfiltered x-ray beam data at a second Z location, the second row not adjacent the first row, and determine spectral information from the first data and the second data."

Yamazaki et al. do not describe or suggest a CT imaging system including a detector array including a plurality of detector cells, a processor operationally coupled to the detector array, wherein the processor is configured to receive first data regarding a first x-ray spectral range from a first detector cell of a first detector row receiving filtered x-ray beam data at a first Z location, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell of a second detector row receiving unfiltered x-ray beam data at a second Z location, wherein the second row is not adjacent the first row, and determine spectral information from the first data and the second data.

Moreover, Yamazaki et al. do not describe or suggest a CT imaging system wherein the processor is configured to receive first data regarding a first x-ray spectral range from a first detector cell of a first detector row receiving filtered x-ray beam data at a first Z location, receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell of a second detector row receiving unfiltered x-ray beam data at a second Z location, wherein the second row is not adjacent the first row. Accordingly, Applicant respectfully submits that Claim 24 is patentable over Yamazaki et al.

Claim 25 depends from independent Claim 24, which is submitted to be in condition for allowance. When the recitations of Claim 25 are considered in combination with the recitations of Claim 24, Applicant respectfully submits that dependent Claim 25 is also patentable over Yamazaki et al.

Claim 26 recites a CT imaging system CT system including “a detector array comprising a plurality of detector cells arranged in a plurality of detector rows; an x-ray source positioned to emit x-rays toward said detector array, and a filter positioned between said array such that a first detector row receives filtered x-ray beam data while a second detector row not adjacent said first detector row receives filtered x-ray beam data filtered differently than said first row.”

Yamazaki et al. do not describe or suggest a CT imaging system including a detector array including a plurality of detector cells arranged in a plurality of detector rows, an x-ray source positioned to emit x-rays toward the detector array, and a filter positioned between the array and the source such that a first detector row receives filtered x-ray beam data while a second detector row not adjacent the first detector row receives filtered x-ray beam data filtered differently than the first row. Moreover, Yamazaki et al. do not describe or suggest a CT imaging system wherein a filter is positioned between the array and the source such that a first detector row receives filtered x-ray beam data while a second detector row not adjacent the first detector row receives filtered x-ray beam data filtered differently than the first row. Accordingly, Applicant respectfully submits that Claim 26 is patentable over Yamazaki et al.

Claims 27-28 depend from independent Claim 26, which is submitted to be in condition for allowance. When the recitations of Claims 27-28 are considered in combination with the recitations of Claim 26, Applicant respectfully submits that dependent Claims 27-28 are also patentable over Yamazaki et al.

For the reasons set forth above, Applicant respectfully requests that the Section 102 rejections of Claims 1-28 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Thomas M. Fisher', is written over a horizontal line.

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